

REMARKS

No claim amendments are being made in this response. Accordingly, Claims 2-12 and 14-28, 31, 33-38, 41-54, 57-60, 62-98, 101-118, and 120-133 remain in the case.

To begin with, the undersigned on behalf of himself and the Applicants wish to thank the Examiner for the telephone interviews of April 1 and April 4, 2003 between the Examiner and the undersigned and the courtesies extended to Applicants and the undersigned in connection with the request made during the phone discussion on April 1, 2003.

The substance of the telephone call of April 1, 2003 was the indication by the undersigned that Albemarle Corporation, the assignee of the above-entitled application, would be likely to arrange for the conduct of further experimental work to support of the patentability of the above-entitled application by repeating one or two Examples from the prior art references relied on in the Final Rejection. However since there are thirteen (13) references relied upon in the Final Rejection the undersigned asked if the Examiner would kindly select the Example or Examples be repeated to enable a comparison to be made with Applicants' process. The Examiner kindly indicated that she would do this. On April 4, 2003, the Examiner called the undersigned to indicate that in the Examiner regarded Example III of Cole U.S. 4,621,096 and Example 10 of Waugh et al 3,121,715 to be the closest prior art for a showing. In neither telephone discussion was there any substantive discussion of patentability. The Examiner did indicate near the close of the discussion on April 4, 2003 that because there are a large number of claims in the case, it may turn out that an RCE would be required. However the undersigned understood from this conversation that although no commitment one way or the other on need for an RCE was being made by the Examiner, Applicants could submit a showing and comments for at least preliminary review by the Examiner.

As brought out in Applicants' specification, one of the features of the present invention is that the claimed process enables the direct production of 1,3-dibromo-5,5-dimethylhydantoin products having large average particle sizes. This is made abundantly clear by the results obtained in a large number of runs described in the specification as summarized in the following table.

| Example | Type of Operation | Average Particle Size |
|---------|-------------------|------------------------|
| 3 | Batch | 237.5 microns |
| 4 | Batch | >150 microns |
| 5 | Batch | 210.4 microns |
| 6 | Batch | 293.6 microns |
| 7 | Batch | 231.2 microns |
| 8 | Batch | 178.4 microns |
| 9 | Continuous | 512.3 microns |
| 10 | Continuous | At least 455.5 microns |
| 13 | Continuous | 188.9 microns |

Not only does the process enable the directly-formed product particle sizes to be large, but because of this there are several other advantageous features described in the specification. For example, as stated at Page 30, line 14 through Page 31, line 2 (as amended to replace an attorney docket number by the application number of a copending application):

Because this invention enables the direct production of 1,3-dibromo-5,5-dimethylhydantoin reaction products in which the recovered 1,3-dibromo-5,5-dimethylhydantoin particulate solids have an average particle size of at least 175 microns, several very substantial advances in the art are made possible. For example, it has been discovered that 1,3-dibromo-5,5-dimethylhydantoin particulate solids having average particle sizes above 175 microns:

- a) are far easier to handle because of their much lower dusting tendencies;
- b) have flow properties through pipes and conduits and from hoppers that are far superior;
- c) could be pressure compacted into shape-retentive tablets without use of a binder and without breakage occurring, whereas samples of commercially-available 1,3-dibromo-5,5-dimethylhydantoin particulate solids from several different sources could not be converted into tablets in the same manner without breakage occurring

These and related discoveries are described in detail in commonly-owned copending Application No. 09/484,687 referred to above.

The copending application referred to as regards further information concerning these advantageous features is now U.S. Pat. No. 6,508,954 B1 issued January 21, 2003.

That the present invention enables direct production of 1,3-dibromo-5,5-dimethylhydantoin (DBDMH) with large particle sizes and low dusting properties, is of great significance is shown by teachings in the prior art such as Bhattacharya WO 97-43264, one of the 13 applied references. Speaking as recently as 1996, Bhattacharya states with reference to BCDMH, DCDMH, and DBDMH (near the bottom of page 2 and at the top of page 3):

These halogen donors are manufactured in fine powder or in "dust" forms.

* * *

Halogen donor compounds such as BCDMH, DCDMH, and DBDMH are irritating in nature. Since these products exhibit a large amount of dusting, they are undesirable for use in and around the home, as well as in industrial environments for bleaching, dishwashing, or other purposes. Additionally, a high dusting product tends to intensify the halogen odor normally associated with halogen donor compounds. Such a halogen odor can, in and of itself, be most irritating, and should be avoided.

Essentially the same type of teaching appears in Girard U.S. 4,560,766, another of the 13 applied references, at Column 1, lines 45-55. Thus the fact that Applicants' process enables production of particulate DBDMH with large average particle sizes can be seen to be an important advance in this area of technology.

The accompanying Declaration by Dr. Aplin supports the above teachings of Bhattacharya WO 97-43264 and Girard U.S. 4,560,766 by showing that DBDMH products directly formed by the particular examples of the references deemed by the Examiner to be the closest prior art, are finely divided with very small average particle sizes.

More specifically, the accompanying Declaration by Dr. Aplin shows that the 1,3-dibromo-5,5-dimethylhydantoin produced in accordance with Example III of Cole U.S. Pat. No. 4,621,096 had an average particle size of only 35.69 microns. Also, after washing the average particle size of this product was only 27.33 microns. The purpose of this washing was to obtain an indication of what effect, if any, the added calcium chloride might have on particle size. The Declaration further shows that 1,3-dibromo-5,5-dimethylhydantoin produced according to Example 10 of Waugh et al U.S. Pat. No. 3,121,715 had an average particle size of but 18.48 microns.

From the foregoing it can be seen that there is a dramatic difference between the average particle sizes of 1,3-dibromo-5,5-dimethylhydantoin (DBDMH) produced by Applicants' process and the processes of the reference examples deemed to be the closest prior art. Even Applicants' DBDMH product with the smallest indicated average particle size in the above table (>150 microns) was at least over 400% as large as the average particle size of the unwashed DBDMH produced according to Cole Example III, and at least over 610% as large as the average particle size of the DBDMH produced according to Waugh et al Example 10. Such large differences in the respective particle sizes as between the present invention and the two closest prior art references clearly translates into a significant low dusting tendency for the products formed by the process of the present invention.

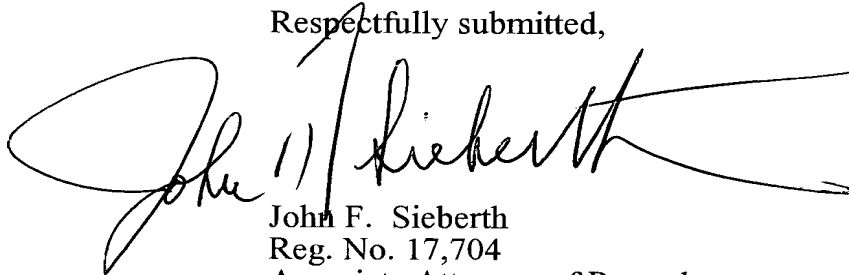
It is submitted, therefore, that the present invention is indeed patentable over the applied prior art. Clearly Applicants' process gives rise to advantageous results which could not have been foreseen from the references and which, as the results of Dr. Aplin's Declaration show, were not achieved in the examples deemed to be the closest prior art.

Accordingly Applicants solicit (A) entry of this response, (B) reconsideration and withdrawal of the sole remaining rejection in the case -- viz., the rejection of the claims on Rogers 2,392,505, Rogers 2,398,598, Paterson 2,779,764, Paterson 3,147,259, Wolf et al. 2,920,997, Waugh et al 3,121,715, Cole 4,532,330, Girard et al 4,560,766, Girard et al 4,654,424, Puzig 4,677,130, Lee et al 4,745,189, Bhattacharya WO 97-43264, and Jolles, *Bromine and its Compounds*, 1966, Ernest Benn, London, page 365, each taken alone or in combination with each other -- and (C) favorable Action leading to allowance of the application.

If any matters remain in requiring further consideration, the Examiner is respectfully requested to telephone the undersigned so that such matters can be discussed, and if possible, promptly resolved.

Please continue to address all correspondence in this Application to Mr. Philip M. Pippenger at the address of record.

Respectfully submitted,



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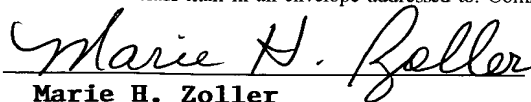
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I hereby certify that in accordance with standard business practice, this paper (along with any referred to as being attached or enclosed) is to be deposited on the date shown below with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

June 26, 2003

Date


Marie H. Zoller